Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Stroke: percentage of ED acute ischemic stroke or hemorrhagic stroke patients who arrive at the ED within 2 hours of the onset of symptoms who have a head CT or MRI scan performed during the stay and having a time from ED arrival to interpretation of the head CT or MRI scan within 45 minutes of arrival.

Source(s)

Centers for Medicare and Medicaid Services (CMS). Hospital outpatient quality reporting specifications manual, version 11.0. Baltimore (MD): Centers for Medicare and Medicaid Services (CMS); Effective 2018 Jan. various p.

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of emergency department (ED) acute ischemic stroke or hemorrhagic stroke patients who arrive at the ED within 2 hours of the onset of symptoms who have a head computed tomography (CT) or magnetic resonance imaging (MRI) scan performed during the stay and having a time from ED arrival to interpretation of the head CT or MRI scan within 45 minutes of arrival.

Rationale

Improved access to diagnostic imaging assists clinicians in the decision making process and treatment plans. Over 143,579 people die each year from stroke (The Internet Stroke Center, 2009). Stroke is the third leading cause of death in the United States. Each year, about 795,000 people suffer a stroke. About 600,000 of these are first attacks, and 185,000 are recurrent attacks (Lloyd-Jones et al., 2009).

Decreasing radiology turnaround times will enhance decision making capabilities for patients with transient ischemic attack (TIA) or acute ischemic stroke. The Food and Drug Administration (FDA) approved the use of tissue plasminogen activator (t-PA) for treatment of acute ischemic stroke when given within three hours of stroke symptom onset (Brott et al., 2000). Of all strokes, 87 percent are ischemic, 10 percent are intracerebral hemorrhage, and 3 percent are subarachnoid hemorrhage (Hacke et al., 2004). Because of the therapeutic time window for treatment possibilities, timely completion and results of the computed tomography (CT) or magnetic resonance imaging (MRI) scan are imperative and play a role in determining the quality of care a patient receives. Clinical consensus indicates that stroke treatment is most effective when administered rapidly based on interpretation of real-time intracranial imaging.

Improved access to diagnostics assists clinicians in decision making. Diagnostic imaging and laboratory reports are expected to increase length of stay in the emergency department. Radiology report turnaround time can impact patient throughput times in the emergency department (DeFlorio et al., 2008). Decreasing radiology report turnaround times can have impacts across the facility and assist in reducing the length of stay and enhancing decision making capabilities for patient treatment plans (Marquez, 2005). Efficiencies in throughput with tasks can lead to less diversion, less overcrowding, less elopements, and less financial loss (Falvo et al., 2007).

Evidence for Rationale

Brott TG, Clark WM, Fagan SC, Grotta JC, Hopkins LN, Jauch EC, Latchaw RE, Starkman S. Stroke: the first hours. Guidelines for acute treatment. Englewood (CO): National Stroke Association (NSA); 2000. 14 p. [76 references]

Centers for Medicare and Medicaid Services (CMS). Hospital outpatient quality reporting specifications manual, version 11.0. Baltimore (MD): Centers for Medicare and Medicaid Services (CMS); Effective 2018 Jan. various p.

DeFlorio R, Coughlin B, Coughlin R, Li H, Santoro J, Akey B, Favreau M. Process modification and emergency department radiology service. Emerg Radiol. 2008 Nov;15(6):405-12. PubMed

Falvo T, Grove L, Stachura R, Zirkin W. The financial impact of ambulance diversions and patient elopements. Acad Emerg Med. 2007 Jan;14(1):58-62. PubMed

Hacke W, Donnan G, Fieschi C, Kaste M, von Kummer R, Broderick JP, Brott T, Frankel M, Grotta JC, Haley EC, Kwiatkowski T, Levine SR, Lewandowski C, Lu M, Lyden P, Marler JR, Patel S, Tilley BC, Albers G, Bluhmki E, Wilhelm M, Hamilton S, ATLANTIS Trials Investigators, ECASS Trials Investigators, NINDS rt-PA Study Group Investigators. Association of outcome with early stroke treatment: pooled analysis of ATLANTIS, ECASS, and NINDS rt-PA stroke trials. Lancet. 2004 Mar 6;363(9411):768-74. PubMed

Lloyd-Jones D, Adams R, Carnethon M, De Simone G, Ferguson TB, Flegal K, Ford E, Furie K, Go A, Greenlund K, Haase N, Hailpern S, Ho M, Howard V, Kissela B, Kittner S, Lackland D, Lisabeth L, Marelli A, McDermott M, Meigs J, Mozaffarian D, Nichol G, O'Donnell C, Roger V, Rosamond W, Sacco R, Sorlie P, Stafford R, Steinberger J, Thom T, Wasserthiel-Smoller S, Wong N, Wylie-Rosett J, Hong Y, American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Heart disease and stroke statistics--2009 update: a report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Circulation. 2009 Jan 27;119(3):480-6. PubMed

Marquez LO. Improving medical imaging report turnaround times. Radiol Manage. 2005 Jan-Feb;27(1):34-7.

The Internet Stroke Center. Stroke statistics. [internet]. Dallas (TX): The Internet Stroke Center; 2009.

Primary Health Components

Acute ischemic stroke; hemorrhagic stroke; computed tomography (CT); magnetic resonance imaging (MRI); scan interpretation

Denominator Description

Emergency department (ED) acute ischemic stroke or hemorrhagic stroke patients arriving at the ED within 2 hours of the *Time Last Known Well* (as defined in the Data Dictionary) with an order for a head computed tomography (CT) or magnetic resonance imaging (MRI) scan

Included populations:

> Patients with an *International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Principal Diagnosis Code* for acute ischemic stroke, or hemorrhagic stroke (as defined in Appendix A, OP Table 8.0 of the original measure documentation); and
> Patients who had a *Head CT or MRI Scan Order* (as defined in the Data Dictionary); and
> An *Evaluation and Management (E/M) Code* for ED encounter (as defined in Appendix A, OP Table 1.0 of the original measure documentation)

See the related "Denominator Inclusions/Exclusions" field.

Numerator Description

Emergency department (ED) acute ischemic stroke or hemorrhagic stroke patients arriving at the ED within 2 hours of the time last known well, with an order for a head computed tomography (CT) or magnetic resonance imaging (MRI) scan whose time from ED arrival to interpretation of the head CT scan is within 45 minutes of arrival

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

Unspecified

Extent of Measure Testing

This measure is being collected by hospitals paid under the Outpatient Prospective Payment System; about 4,000 hospitals across the nation. The measure has been collected since January 1, 2012. In 2015, validity testing of critical data elements was performed on this measure for the measure period of January 1, 2014 to December 31, 2014.

Evidence for Extent of Measure Testing

National Quality Forum (NQF). Neurology 2015-2016. [internet]. Washington (DC): National Quality Forum (NQF); 2015 [accessed 2016 Jan 28].

Rosenstein D. (Policy Analyst, Mathematica Policy Research, Princeton, NJ). Personal communication. 2016 Jan 28. 1 p.

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Emergency Department

Hospital Outpatient

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

Statement of Acceptable Minimum Sample Size

Specified

Target Population Age

Age greater than or equal to 18 years

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Timeliness

Data Collection for the Measure

Case Finding Period

Encounter dates: January 1 through December 31

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Diagnostic Evaluation

Encounter

Patient/Individual (Consumer) Characteristic

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions
Emergency department (ED) acute ischemic stroke or hemorrhagic stroke patients arriving at the ED within 2 hours of the *Time Last Known Well* (as defined in the Data Dictionary) with an order for a head computed tomography (CT) or magnetic resonance imaging (MRI) scan

Included populations:

- Patients with an *International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Principal Diagnosis Code* for acute ischemic stroke, or hemorrhagic stroke (as defined in Appendix A, OP Table 8.0 of the original measure documentation); and
- Patients who had a *Head CT or MRI Scan Order* (as defined in the Data Dictionary); and
- An *Evaluation and Management (E/M) Code* for ED encounter (as defined in Appendix A, OP Table 1.0 of the original measure documentation)

Exclusions

- Patients less than 18 years of age
- Patients who expired
- Patients who left the ED against medical advice or discontinued care

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions
Emergency department (ED) acute ischemic stroke or hemorrhagic stroke patients arriving at the ED within 2 hours of the time last known well, with an order for a head computed tomography (CT) or magnetic resonance imaging (MRI) scan whose time from ED arrival to interpretation of the head CT scan is within 45 minutes of arrival

Exclusions
None

Numerator Search Strategy

Encounter

Data Source

Administrative clinical data

Paper medical record

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

- A software application designed for the collection and analysis of quality improvement data, the CMS Abstraction and Reporting Tool (CART), is available from the QualityNet Web site .
- Stroke Hospital Outpatient Population Algorithm: OP-23
- Algorithm Narrative for OP-23: Stroke Hospital Outpatient Population
- OP-23: Head Computed Tomography (CT) or Magnetic Resonance Imaging (MRI) Scan Results for Acute Ischemic Stroke or Hemorrhagic Stroke Patients who Received Head CT or MRI Scan Interpretation Within 45 Minutes of ED Arrival Algorithm
- Algorithm Narrative for OP-23: Head CT or MRI Scan Results for Acute Ischemic Stroke or Hemorrhagic Stroke Patients who Received Head CT or MRI Scan Interpretation Within 45 Minutes of ED Arrival

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a higher score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Identifying Information

Original Title

OP-23: hospital outpatient stroke: head CT or MRI scan results for acute ischemic stroke or hemorrhagic stroke patients who received head CT or MRI scan interpretation within 45 minutes of ED arrival.

Measure Collection Name

Hospital Outpatient Quality Measures

Measure Set Name

Stroke

Submitter

Centers for Medicare & Medicaid Services - Federal Government Agency [U.S.]

Developer

Centers for Medicare & Medicaid Services - Federal Government Agency [U.S.]

Funding Source(s)

United States Department of Health and Human Services

Composition of the Group that Developed the Measure

The measure was developed by the Centers for Medicare & Medicaid Services (CMS) Contractor at the time, the Oklahoma Foundation for Medical Quality Contractor. The measure continues to be maintained by CMS and its current measure maintenance contractor, Mathematica Policy Research, in conjunction with a multi-disciplinary Technical Expert Panel.

Financial Disclosures/Other Potential Conflicts of Interest

None

Endorser

National Quality Forum - None

NQF Number

not defined yet

Date of Endorsement

2017 Oct 3

Measure Initiative(s)

Hospital Compare

Hospital Outpatient Quality Reporting Program

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2018 Jan

Measure Maintenance

Twice yearly

Date of Next Anticipated Revision

Unspecified

Measure Status

This is the current release of the measure.

This measure updates a previous version: Centers for Medicare and Medicaid Services (CMS). Hospital outpatient quality reporting specifications manual, version 9.0a. Baltimore (MD): Centers for Medicare and Medicaid Services (CMS); Effective 2016 Jan 1. various p.

Measure Availability

Source available from the QualityNet Web site .

Check the QualityNet Web site regularly for the most recent version of the specifications manual and for the applicable dates of discharge.

NQMC Status

This NQMC summary was completed by ECRI Institute on May 7, 2014. The information was verified by the measure developer on July 3, 2014.

This NQMC summary was updated by ECRI Institute on December 22, 2015. The information was verified by the measure developer on January 28, 2016.

This NQMC summary was updated again by ECRI Institute on January 16, 2018. The information was verified by the measure developer on February 7, 2018.

Copyright Statement

The Hospital Outpatient Quality Reporting Specifications Manual is periodically updated by the Centers for Medicare & Medicaid Services. Users of the Hospital OQR Specifications Manual must update their software and associated documentation based on the published manual production timelines.

Production

Source(s)

Centers for Medicare and Medicaid Services (CMS). Hospital outpatient quality reporting specifications manual, version 11.0. Baltimore (MD): Centers for Medicare and Medicaid Services (CMS); Effective 2018 Jan. various p.

Disclaimer

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